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EXAMINER

BRIGGS, NATHANAEL R

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2871

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/733,305	Applicant(s) CHOI ET AL.	
	Examiner NATHANAEL R. BRIGGS	Art Unit 2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 August 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 4-19 is/are pending in the application.
- 4a) Of the above claim(s) 9-13 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4-8 and 14-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 12 August 2008 have been fully considered but they are not persuasive. Applicant argues that it is obvious from figures 17(a) and 17(b) of Tanuma that the mask of the claimed invention are different from resist masks formed of resist material using coating process on the first alignment film of one substrate. However, it is unclear from Applicant's remarks how this distinction is obvious. Tanuma coats the first and second alignment layers with resist material (23 and 24). Therefore, the manufacturing method of Tanuma meets the claimed limitations. Applicant's arguments are therefore not persuasive.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 4-6, 8, and 14-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanuma et al. (US 5,917,569) in view of Takato et al. (US 6,445,434).

4. Regarding claim 1, Tanuma discloses an aligning method of an LCD (see figures 11(a), 11(b), and 17(a) - 19, for instance), comprising steps of: disposing a first mask (23) and a second mask (24), each of which has opening regions and blocking regions arranged in alternating fashion in vertical direction and horizontal direction

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corresponding to liquid crystal cells (13) of the LCD including a lower plate and an upper plate; and injecting a liquid crystal material within a the liquid crystal panel (column 7, lines 31-35); arranging the first mask on a first alignment film (25B) formed on the upper plate of the liquid crystal panel (12); rubbing the first alignment film (25B) of the upper plate (12) through the first mask (23); arranging the second mask (24) on a second alignment film (25A) formed on the lower plate (11) of the liquid crystal panel; and rubbing the second alignment film (25A) of the lower plate (11) in the same direction (column 25, lines 32-42) as the rubbing direction of the alignment film of the upper plate through the second mask (24, column 25, lines 32-42), wherein the opening regions of the first mask (23) corresponds to the blocking regions of the second mask (24) respectively, and the blocking regions of the first mask (23) corresponds to the opening regions of the second mask (24) respectively; wherein each of the opening regions is substantially the same area as a liquid crystal cell (13), the liquid crystal cell corresponding to an area of a pixel electrode (13); wherein the first mask is disposed on the first alignment film (25B) of the upper plate and the second mask is disposed on the second alignment film of the lower plate (25A); wherein the first alignment film of the upper plate and the second alignment film of the lower plate are ribbed according to the same rubbing direction (column 25, lines 32-42); and wherein after the upper and lower plates are assembled, the first (25B) and second (25A) alignment films are aligned in opposite directions each other (since same-directional and opposite-directional rubbing occurs on each alignment layer). However, Tanuma does not expressly disclose wherein the liquid crystal material is ferroelectric.

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5. Regarding claim 1, Takato discloses a ferroelectric LCD (see figures 1 and 2, for instance), having a similar mask and rubbing process for manufacturing the alignment layer (column 2, lines 15-21; see mask structure in figure 17), wherein the liquid crystal layer is ferroelectric (column 11, lines 15-24).

6. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use ferroelectric liquid crystal material as Takato in the LCD of Tanuma. The motivation for doing so would have been to use an analogous and conventional technology to obtain high speed response, as taught by Takato (column 11, lines 15-24). Claim 1 is therefore unpatentable.

7. Regarding claim 4, Tanuma in view of Takato discloses the aligning method according to claim 1 (see Tanuma 11(a), 11(b), and 17(a) - 19, for instance), and Tanuma further discloses the step of disposing a first mask and a second mask (23, 24), further comprising the steps of: arranging the first mask having opening regions on a first alignment film (25B) formed on an upper plate of the liquid crystal panel; photo-exposing the first alignment film of the upper plate with an ultraviolet ray through the first mask; arranging the second mask (24) having opening regions on a second alignment film (25A) formed on the lower plate of the liquid crystal panel; and photo-exposing the second alignment film of the lower plate through the second mask. Claim 4 is therefore unpatentable.

8. Regarding claim 5, Tanuma in view of Takato discloses the aligning method according to claim 4 (see Tanuma 11(a), 11(b), and 17(a) - 19, for instance), and

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Tanuma further discloses wherein each of the opening regions openings is substantially the same area size as a liquid crystal cell (13). Claim 5 is therefore unpatentable.

9. Regarding claim 6, Tanuma in view of Takato discloses the aligning method according to claim 4 (see Tanuma 11(a), 11(b), and 17(a) - 19, for instance), and Tanuma further discloses wherein the opening -and blocking regions in the first and the second masks are arranged in an alternating fashion. Claim 6 is therefore unpatentable.

10. Regarding claim 8, Tanuma discloses an aligning method of an LCD (see figures 11(a), 11(b), and 17(a) - 19, for instance), comprising steps of: aligning an upper plate (12) of a liquid crystal panel by using a first mask (23) having a first plurality of opening regions patterned thereon; rubbing a first alignment film (25B) of the upper plate (12) through the first mask (23) along a first direction; aligning a lower plate (11) of the liquid crystal panel by using a second mask (24) having a second plurality of opening regions patterned thereon; rubbing a second alignment film (25B) of the lower plate (11) through the second mask (24) along the first direction, assembling the upper and lower plates (12, 11) of the liquid crystal panel such that the first and second alignment films are aligned in opposite directions to each other (since same-directional and opposite-directional rubbing occurs on each alignment layer; column 20, lines 20-35); and injecting a liquid crystal material (column 7, lines 31-35) between the assembled the upper and the lower plates (12, 11) of the liquid crystal panel, wherein the opening regions of the first mask (23) corresponds to blocking regions of the second mask (24) respectively, and the opening regions of the second mask (24) corresponds to blocking regions of the first mask (23) respectively; and wherein each of opening regions

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openings of the first and second masks is substantially the same area as a liquid crystal cell (13), the liquid crystal cell corresponding to an area of a pixel electrode (13); wherein the first mask is disposed on the first alignment film (25B) of the upper plate and the second mask is disposed on the second alignment film of the lower plate (25A); wherein the first alignment film of the upper plate and the second alignment film of the lower plate are ribbed according to the same rubbing direction (column 25, lines 32-42). However, Tanuma does not expressly disclose wherein the liquid crystal material is ferroelectric.

11. Regarding claim 8, Takato discloses a ferroelectric LCD (see figures 1 and 2, for instance), having a similar mask and rubbing process for manufacturing the alignment layer (column 2, lines 15-21; see mask structure in figure 17), wherein the liquid crystal layer is ferroelectric (column 11, lines 15-24).

12. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use ferroelectric liquid crystal material as Takato in the LCD of Tanuma. The motivation for doing so would have been to use an analogous and conventional technology to obtain high speed response, as taught by Takato (column 11, lines 15-24). Claim 8 is therefore unpatentable.

13. Regarding claim 14, Tanuma in view of Takato discloses the aligning method according to claim 1 (see Tanuma 11(a), 11(b), and 17(a) - 19, for instance), and Tanuma further discloses wherein the liquid crystal panel has first regions corresponding to the opening regions of the first mask (23) and second regions corresponding to the opening regions of the second mask (24), the first regions and the

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second regions are respectively aligned in opposite directions. Claim 14 is therefore unpatentable.

14. Regarding claim 15, Tanuma in view of Takato discloses the aligning method according to claim 8 (see Tanuma 11(a), 11(b), and 17(a) - 19, for instance), and Tanuma further discloses wherein the liquid crystal panel has first regions corresponding to the opening regions of the first mask (23) and second regions corresponding to the opening regions of the second mask (24), the first regions and the second regions are respectively aligned in opposite directions. Claim 15 is therefore unpatentable.

15. Regarding claim 16, Tanuma in view of Takato discloses the aligning method according to claim 14 (see Tanuma 11(a), 11(b), and 17(a) - 19, for instance), wherein the first regions and the second regions are alternately arranged in a vertical and horizontal direction of the liquid crystal panel. Claim 16 is therefore unpatentable.

16. Regarding claim 17, Tanuma in view of Takato discloses the aligning method according to claim 15 (see Tanuma 11(a), 11(b), and 17(a) - 19, for instance), wherein the first regions and the second regions are alternately arranged in a vertical and horizontal direction of the liquid crystal panel. Claim 17 is therefore unpatentable.

17. Regarding claim 18, Tanuma in view of Takato discloses the aligning method according to claim 14 (see Tanuma 11(a), 11(b), and 17(a) - 19, for instance), wherein the first regions and the second regions are substantially the same area as the liquid crystal cell (13) of the liquid crystal panel. Claim 18 is therefore unpatentable.

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18. Regarding claim 19, Tanuma in view of Takato discloses the aligning method according to claim 15 (see Tanuma 11(a), 11(b), and 17(a) - 19, for instance), wherein the first regions and the second regions are substantially the same area as the liquid crystal cell (13) of the liquid crystal panel. Claim 19 is therefore unpatentable.

19. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tanuma et al. (US 5,917,569) in view of Takato et al. (US 6,445,434) as applied to claim 4 above, and further in view of Ishii (US 6,133,974).

20. Regarding claim 7, Tanuma in view of Takato discloses the aligning method according to claim 4 (see Tanuma 11(a), 11(b), and 17(a) - 19, for instance). However, Tanuma in view of Takato does not disclose steps of: phase-transiting the ferroelectric liquid crystal material within the liquid crystal panel from an isotropic phase to a nematic phase by lowering temperature of the liquid crystal panel; and phase-transiting the ferroelectric liquid crystal within the liquid crystal panel from the nematic phase to a smectic C phase by further lowering the temperature of the liquid crystal panel.

21. Regarding claim 7, Ishii an aligning method (see figures 13 and 19, for instance), having steps of phase-transitioning the FLC material within the LCD from isotropic to nematic phase by lowering temperature of the LCD (column 39, lines 44-51); and phase-transitioning the FLC material within the LCD from a nematic phase to a smectic C phase by further lowering the temperature of the LCD (column 3, lines 41-50; column 39, lines 60-62).

22. It would have been obvious to one of ordinary skill in the art at the time of the invention to use the rubbing directions of Ishii in the FLCD of Tanuma in view of Takato.

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The motivation for doing so would have been to gain improved viewing angle dependency, as taught by Ishii (column 6, lines 13-15; column 41, lines 49-54). Claim 7 is therefore unpatentable.

Conclusion

23. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NATHANAEL R. BRIGGS whose telephone number is (571)272-8992. The examiner can normally be reached on 9 AM - 5:30 PM Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on (571) 272-1787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Nathanael Briggs

11/26/2008

/Andrew Schechter/

Primary Examiner, Art Unit 2871